

WHAT IS CLAIMED:

1. A method of producing a latent elastic, cross-direction-oriented film, comprising the steps of:

extruding a thermoplastic elastomer;

blowing the extruded thermoplastic elastomer to form a first blown bubble;

stretch-thinning the thermoplastic elastomer while blowing the thermoplastic elastomer;

simultaneously cooling and collapsing the first blown bubble;

heating and inflating the stretch-thinned thermoplastic elastomer to form a second blown bubble, thereby orienting the thermoplastic elastomer in a cross direction while heating and inflating the thermoplastic elastomer; and

simultaneously cooling, collapsing, and winding the film.

2. The method of Claim 1, wherein the thermoplastic elastomer is blown and stretch-thinned at a first temperature and is heated, inflated and oriented at a second temperature lower than the first temperature.

3. The method of Claim 1, wherein the thermoplastic elastomer is blown and stretch-thinned at a temperature above a softening temperature of the thermoplastic elastomer and below a melt temperature of the thermoplastic elastomer.

4. The method of Claim 1, wherein the thermoplastic elastomer is heated, inflated and oriented at a temperature above a glass transition temperature and below a softening temperature of the thermoplastic elastomer.

5. The method of Claim 1, further comprising the step of preheating the thinned thermoplastic elastomer prior to forming the second blown bubble.

6. The method of Claim 1, further comprising the step of cooling the second blown bubble.

7. The method of Claim 1, further comprising the steps of inflating the stretched thermoplastic elastomer to form a third blown bubble and stretching and collapsing the third blown bubble.

8. The method of Claim 1, wherein the first blown bubble is blown to a blow up ratio in a range of between about 2.0:1 and about 2.5:1.

9. The method of Claim 1, wherein the second blown bubble is blown to a blow up ratio in a range of between about 1.4:1 and about 2.5:1.

10. The method of Claim 1, wherein the thermoplastic elastomer comprises between about 55% and 90% elastomeric resin and between about 10% and 45% polyethylene.

11. The method of Claim 1, wherein the thermoplastic elastomer comprises between about 60% and 85% elastomeric resin and between about 15% and 40% polyethylene.

12. The method of Claim 1, wherein the thermoplastic elastomer comprises between about 65% and 80% elastomeric resin and between about 20% and 35% polyethylene.

13. The method of Claim 1, wherein the thermoplastic elastomer comprises an elastomeric resin selected from the group consisting of styrene-poly(ethylene-propylene)-styrene-poly(ethylene-propylene) tetrablock elastomeric copolymer, styrene ethyl/butylene styrene triblock elastomeric copolymer, styrene-butadiene-styrene triblock elastomeric copolymer, styrene/isoprene/styrene block copolymer, and styrene/ethylene-propylene/styrene block copolymer.

14. The method of Claim 1, wherein the thermoplastic elastomer comprises a polyethylene selected from the group consisting of ultra low density polyethylene, low density polyethylene, linear low density polyethylene, high density polyethylene, metallocene-catalyzed polyethylene, ethylene vinyl acetate, and combinations thereof.

15. A method of producing a latent elastic, cross-direction-oriented film, comprising the steps of:

extruding a thermoplastic elastomer;

blowing the extruded thermoplastic elastomer to form a blown bubble;

stretch-thinning the thermoplastic elastomer, thereby orienting the thermoplastic elastomer in a cross direction;

cooling the blown bubble; and

collapsing the blown bubble.

16. The method of Claim 15, comprising the step of using an internal bubble cooling system to cool the blown bubble.

17. The method of Claim 15, comprising the step of using a combined internal/external bubble cooling system to cool the blown bubble.

18. The method of Claim 17, wherein the external air cooling is provided by at least one air ring.

19. The method of Claim 15, further comprising the step of heating the thermoplastic elastomer while orienting the thermoplastic elastomer in the cross direction.

20. The method of Claim 15, wherein the blown bubble is blown to a blow up ratio in a range of between about 1.4:1 and about 2.5:1.

21. The method of Claim 15, wherein the thermoplastic elastomer comprises between about 55% and 90% elastomeric resin and between about 10% and 45% polyethylene.

22. The method of Claim 15, wherein the thermoplastic elastomer comprises between about 60% and 85% elastomeric resin and between about 15% and 40% polyethylene.

23. The method of Claim 15, wherein the thermoplastic elastomer comprises between about 65% and 80% elastomeric resin and between about 20% and 35% polyethylene.

24. The method of Claim 15, wherein the thermoplastic elastomer comprises an elastomeric resin selected from the group consisting of styrene-poly(ethylene-propylene)-styrene-poly(ethylene-propylene) tetrablock elastomeric copolymer, styrene ethylbutylene styrene triblock elastomeric copolymer, styrene-butadiene-styrene triblock elastomeric copolymer, styrene/isoprene/styrene block copolymer, and styrene/ethylene-propylene/styrene block copolymer.

25. The method of Claim 15, wherein the thermoplastic elastomer comprises a polyethylene selected from the group consisting of ultra low density polyethylene, low density polyethylene, linear low density polyethylene, high density polyethylene, metallocene-catalyzed polyethylene, ethylene vinyl acetate, and combinations thereof.

26. A latent elastic, cross-direction-oriented film, comprising:
between about 55% and 90% elastomeric resin;
between about 10% and 45% polyethylene;
wherein a latent set of the film is at least 50%, a tension set of the film is less than about 20%, shrinkage of the film is at least 50%, a draw ratio of the film is at least 10, and a tensile force of the film is at least 30.

27. The film of Claim 26, comprising between about 60% and 85% elastomeric resin and between about 15% and 40% polyethylene.

28. The film of Claim 26, comprising between about 65% and 80% elastomeric resin and between about 20% and 35% polyethylene.

29. The film of Claim 26, wherein the elastomeric resin is selected from the group consisting of styrene-poly(ethylene-propylene)-styrene-poly(ethylene-propylene) tetrablock elastomeric copolymer, styrene ethylbutylene styrene triblock elastomeric copolymer, styrene-butadiene-styrene triblock elastomeric copolymer, styrene/isoprene/styrene block copolymer, and styrene/ethylene-propylene/styrene block copolymer.

30. The film of Claim 26, wherein the polyethylene is selected from the group consisting of ultra low density polyethylene, low density polyethylene, linear low density polyethylene, high density polyethylene, metallocene-catalyzed polyethylene, ethylene vinyl acetate, and combinations thereof.

31. The film of Claim 26, further comprising a level of potential shrinkage in a range of from about 60% to about 70%.

✓
32. The film of Claim 26, further comprising a gauge of less than 1 mil.

33. The film of Claim 26, further comprising a gage of less than 0.6 mil.

34. The film of Claim 26, further comprising a gage of less than 0.2 mil

35. A multi-component, co-extruded film comprising the film of Claim 26.

36. A nonwoven laminate comprising the film of Claim 26.

37. A nonwoven garment comprising the film of Claim 26.